

Evolveum

Native reports

Lukáš Škublík / February 2022



- Before 4.4
- Native reports
- Basic parts of Native report
- Report tasks
- Converting of Jasper to Native report

| Before 4.4

- Using Jasper framework
- Needed Jaspersoft Studio
- Complicated customization
- Report object contains an additional base64 encoded jasper xml
- Jasper reports were removed in MidPoint 4.4

- Using native object of MidPoint
 - Dashboards
 - Object collection
- Simple creating of new reports
- Support
 - multithreading
 - bucketing (only for collection reports of objects and audit records)
- Every report output is store in ,MidPoint_home'/export

| Basic parts of Native report

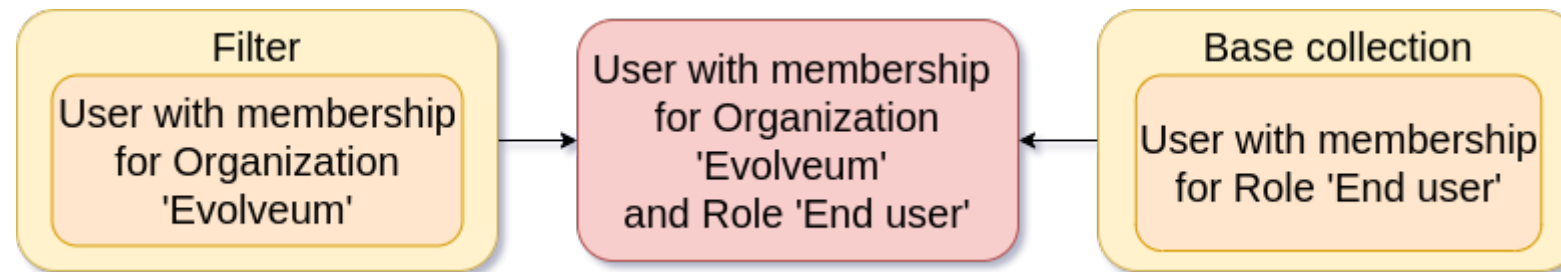
- Behavior
 - Import
 - Export
- Engine
 - Dashboard
 - Object collection
- File format
 - CSV
 - HTML

```
<report>
  <name>Report example</name>
  <behavior>
    <direction>import/export</direction>
  </behavior>
  <dashboard/>/<objectCollection/>
  <fileFormat>
    <type>csv/html</type>
  </fileFormat>
</report>
```

- Supported kind of object
 - Audit records
 - Containers
 - Objects in MidPoint (UserType, RoleType, OrgType, ...)
- Part of configuration
 - Query
 - Columns
 - Parameters
 - Subreports
 - Condition

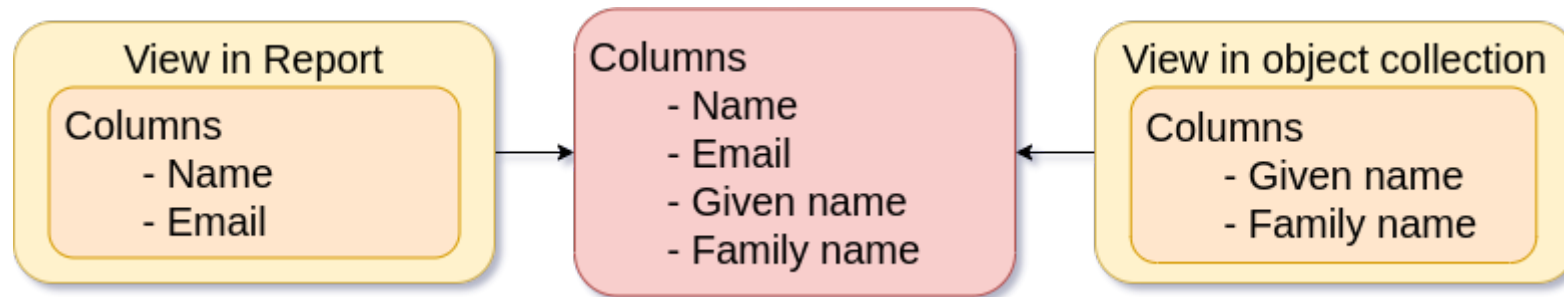
| Collection report - query

- Attribute *collection*
- Three variants
 - Reference object collection
 - Filter query
 - Filter query with base collection



| Collection report - columns

- Attribute *view*
- Columns are merged from views



- Can use only view in report – *useOnlyReportView*
- Default view for audit records and MidPoint objects

Collection report - columns

Users in MidPoint (Users in MidPoint)

actions: Back, Save, Save and run, Change archetype, Delete object, Edit raw

Report operations: Show report preview, Show report preview in popup

Type: User

Columns

<input type="checkbox"/>	Name ⁱ	Path ⁱ	Label ⁱ	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	nameColumn	name Reset path		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	fullNameColumn	fullName Reset path		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	activationColumn	activation/administrativeStatus Reset path		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	roleColumn	assignment Reset path	Role	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	orgColumn	assignment Reset path	Organization	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	accountColumn	listDef	Account	<input type="checkbox"/>	<input type="checkbox"/>

```
<view>
  <column>
    <name>nameColumn</name>
    <path>name</path>
  </column>
  <column>
    <name>fullNameColumn</name>
    <path>fullName</path>
    <previousColumn>nameColumn</previousColumn>
  </column>
</view>
```

Collection report - parameters

- Attribute *parameter*

MidPoint (Users in MidPoint)

Save and run Change archetype Delete object Edit raw Report operations Show report preview Show

```
<parameter>
  <name>activation</name>
  <type>ActivationStatusType</type>
  <display>
    <label>
      <t:orig>activation</t:orig>
      <t:norm>activation</t:norm>
      <t:translation>
        <t:key>ActivationType.administrativeStatus</t:key>
      </t:translation>
    </label>
  </display>
</parameter>
```

<input type="checkbox"/>	Name <i>i</i>	Type <i>i</i>	Label <i>i</i>	<input type="checkbox"/>
<input type="checkbox"/>	activation	ActivationStatusType	Administrative status	<input type="checkbox"/>
<input type="checkbox"/>	organizationRef	ObjectReferenceType	Organization	<input type="checkbox"/>
<input type="checkbox"/>	roleRef	ObjectReferenceType	Role	<input type="checkbox"/>
<input type="checkbox"/>	resourceRef	ObjectReferenceType	Resource	<input type="checkbox"/>

- Attribute *parameter*



Collection report - subreports

- Attribute *subreport*
- Subreport variable is type collection

```
<column>
  <name>emailInMpColumn</name>
  <display>
    <label>Email in mP</label>
  </display>
  <previousColumn>lastNameColumn</previousColumn>
  <export>
    <expression>
      <script>
        <code>
          if (user.isEmpty()) {
            return user.get(0).asObjectable().getEmailAddress();
          }
        </code>
      </script>
    </expression>
  </export>
</column>
```

```
<subreport>
  <name>user</name>
  <type>UserType</type>
  <expression>
    <script>
      <code>
        return midpoint.searchShadowOwner(object.getId());
      </code>
    </script>
  </expression>
</subreport>
```

| Collection report - condition

- Attribute *condition*
- Use only when query is insufficient
- High performance requirements

Collection report – example

Users in MidPoint

Report generated on: Saturday, 5. Feb 2022 19:13:36

Name	Full name	Administrative status	Role	Organization	Account
admin	Admin Admin	Enabled	Superuser	ADMIN	
administrator	midPoint Administrator	Enabled	Superuser		
janeway	Kathryn Janeway	Enabled	Secret Projects I		kjaneway(Resource: CSV-1 (Document Access))
kirk	Jim Tiberius Kirk	Enabled	Internal Employee CSV-3 Admin CSV-1 Tester	0919	cn=Jim Tiberius Kirk,ou=ExAmPLE,dc=example,dc=com(Resource: CSV-3 (LDAP)) jkirk(Resource: CSV-1 (Document Access)) jkirk(Resource: CSV-2 (Canteen Ordering System)) _kirk(Resource: CSV-1 (Document Access)) cn=Jim Tiberius Kirk,ou=_Administrators_,ou=ExAmPLE,dc=example,dc=com(Resource: CSV-3 (LDAP))
picard	Jean-Luc Picard	Enabled			jpocard(Resource: CSV-1 (Document Access))
X000002	Richard Dwayne	Disabled		FORMER	000002(Resource: ExAmPLE, Inc. HR Source)
X000005	Eve Morthanic	Enabled	Internal Employee Basic user Address Book Attributes Manager Terraforming Terraforming2	ACTIVE 0100 0100	000005(Resource: ExAmPLE, Inc. HR Source) emorthan(Resource: CSV-2 (Canteen Ordering System)) emorthanic(Resource: CSV-1 (Document Access)) cn=Eve Morthanic,ou=0100,ou=ExAmPLE,dc=example,dc=com(Resource: CSV-3 (LDAP)) uid=X000005,ou=people,dc=evolveum,dc=com(Resource: OpenLDAP)
X000021	Rudie Mechal	Enabled	Internal Employee Basic user User Manager	ACTIVE 0100	000021(Resource: ExAmPLE, Inc. HR Source) rmechal(Resource: CSV-2 (Canteen Ordering System)) rmechal(Resource: CSV-1 (Document Access)) cn=Rudie Mechal,ou=0100,ou=ExAmPLE,dc=example,dc=com(Resource: CSV-3 (LDAP))
X000035	James Bradley	Enabled	Internal Employee Basic user	ACTIVE 0200 0200	000035(Resource: ExAmPLE, Inc. HR Source) jbradley(Resource: CSV-2 (Canteen Ordering System)) jbradley(Resource: CSV-1 (Document Access)) cn=James Bradley,ou=0200,ou=ExAmPLE,dc=example,dc=com(Resource: CSV-3 (LDAP))
X000045	Andreas Decker	Enabled	Internal Employee	ACTIVE 0110	000045(Resource: ExAmPLE, Inc. HR Source) adecker(Resource: CSV-2 (Canteen Ordering System))

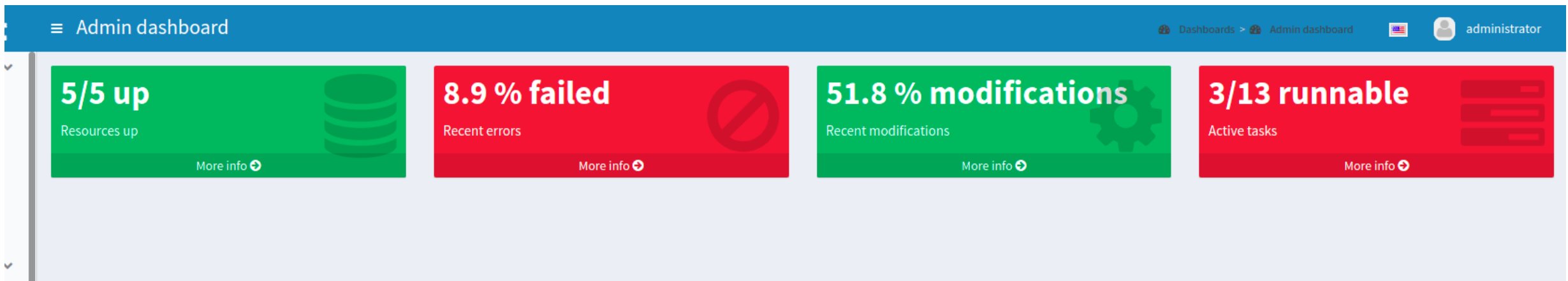
| Collection report – example

- Audit report with changed attributes
- Comparing attributes of shadow and attributes of user in midPoint
- Long unchanged accounts
- Users without account

- All examples are in the docs!
 - <https://docs.evolveum.com/midpoint/reference/misc/reports/examples/>

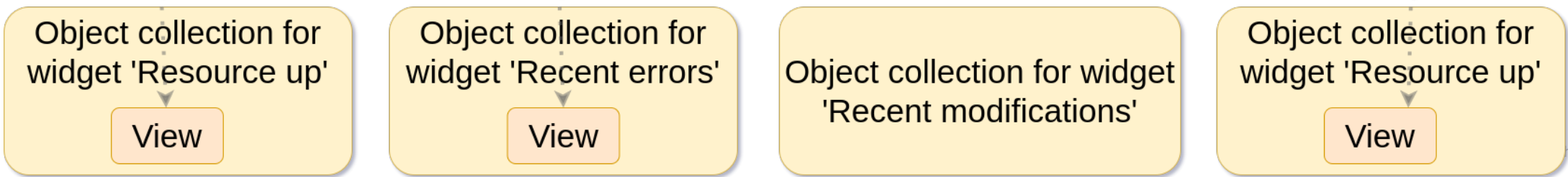
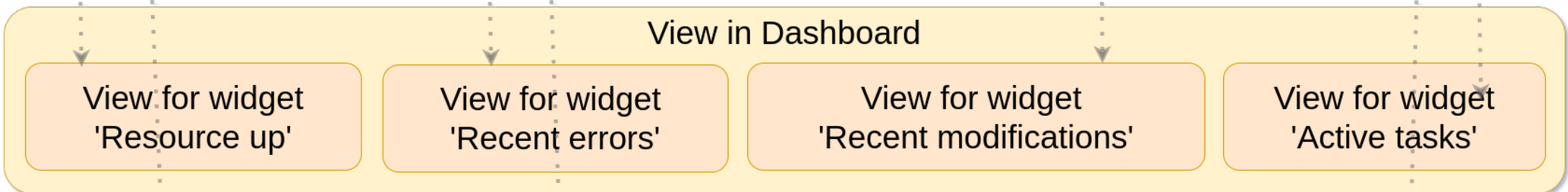
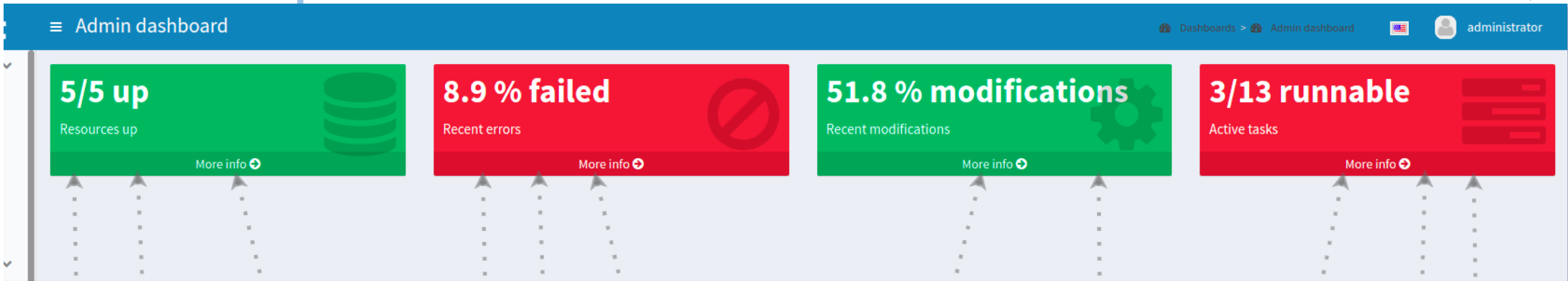
Dashboard report

- Create report from dashboard
 - Documentation for dashboard configuration
<https://docs.evolveum.com/midpoint/reference/admin-gui/dashboards/configuration/>



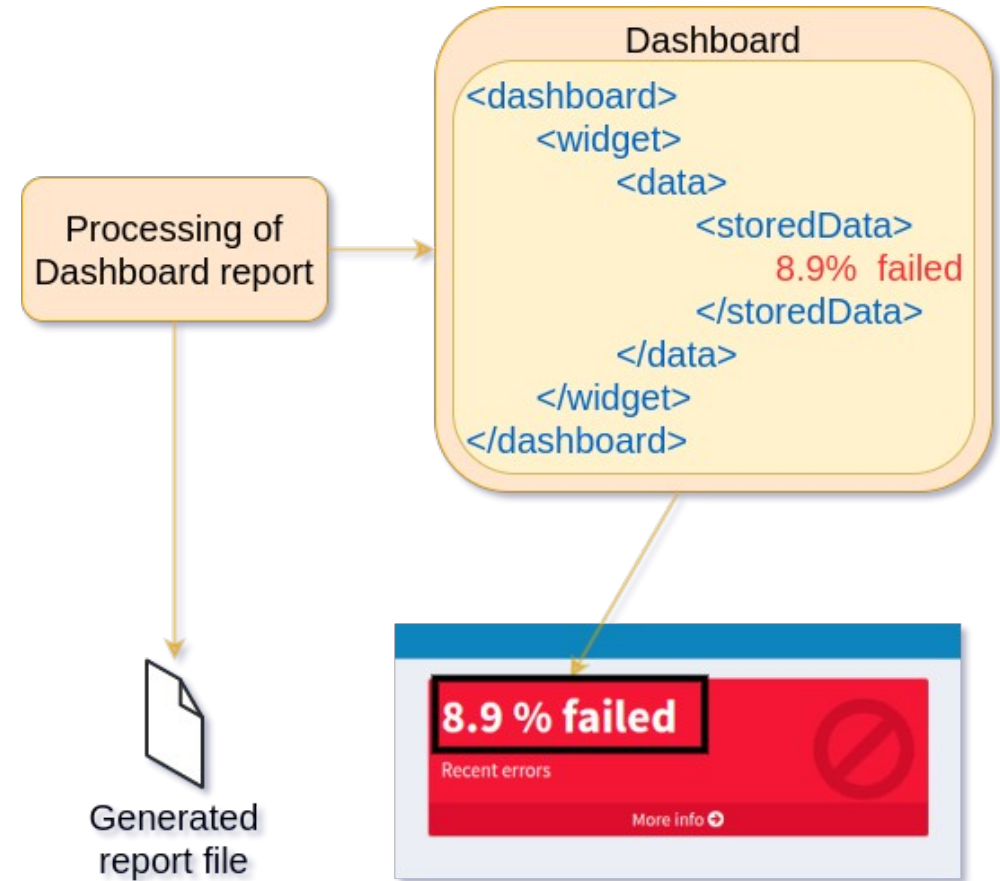
- Skip tables for individual widgets by attribute *showOnlyWidgetsTable*

Dashboard report - view



Dashboard report – output

- Attribute *storeExportedWidgetData*
- Possible values:
 - *onlyWidget*
 - *onlyFile*
 - *WidgetAndFile*






- Documentation for asynchronous dashboard configuration
<https://docs.evolveum.com/midpoint/reference/admin-gui/dashboards/configuration/#asynchronous-widget>

Dashboard report – output

Widget

Report generated on: Thursday, 3. Feb 2022 21:23:37

Label	Number	Status
Resources up	5/5 up	
Recent errors	8.3 % failed	
Recent modifications	50 % modifications	
Active tasks	3/14 runnable	

Resources up

Report generated on: Thursday, 3. Feb 2022 21:23:37

Name	Connector type	Connector version
CSV-1 (Document Access)	com.evolveum.polygon.connector.csv.CsvConnector	2.4
CSV-2 (Canteen Ordering System)	com.evolveum.polygon.connector.csv.CsvConnector	2.4
CSV-3 (LDAP)	com.evolveum.polygon.connector.csv.CsvConnector	2.4
ExAmPLE, Inc. HR Source	com.evolveum.polygon.connector.csv.CsvConnector	2.4
OpenLDAP	com.evolveum.polygon.connector.ldap.LdapConnector	3.3

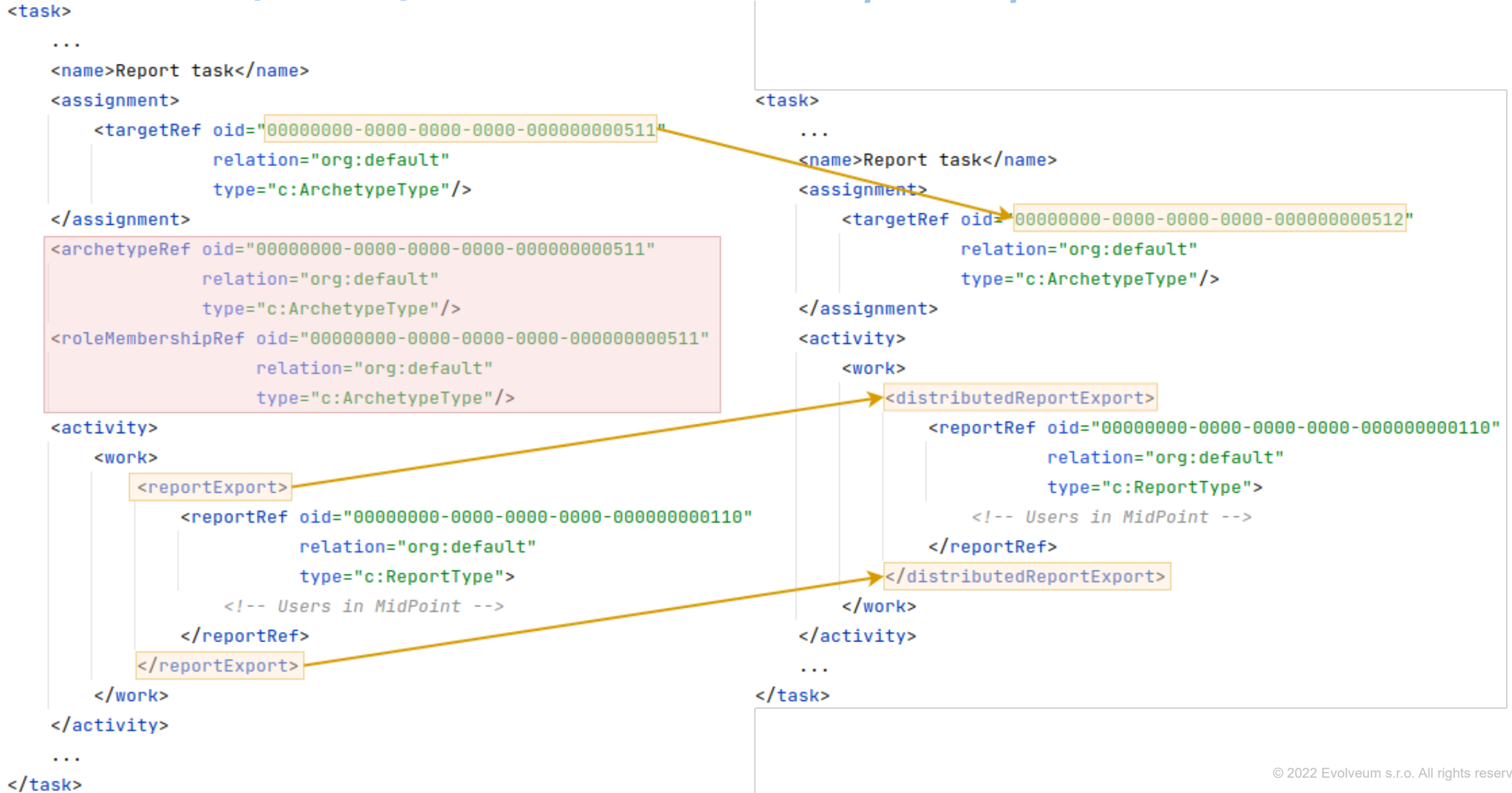
Recent errors

Report generated on: Thursday, 3. Feb 2022 21:23:37

Time	Initiator	Event stage	Event type	Target	Outcome	Message	Delta
------	-----------	-------------	------------	--------	---------	---------	-------

- From 4.4 MidPoint contains three activity work definition for task
 - ClassicReportExportWorkDefinitionType *reportExport*
 - Support multithreading (containers, objects and audit records)
 - ClassicReportImportWorkDefinitionType *reportImport*
 - Support multithreading (only objects)
 - DistributedReportExportWorkDefinitionType *distributedReportExport*
 - Support multithreading and bucketing (objects and audit records)

Convert *reportExport* to *distributedReportExport*





Demo

Converting of Jasper to Native report - query

```
<report oid="00000000-0000-0000-0000-000000000110"
  xmlns="http://midpoint.evolveum.com/xml/ns/public/common/common-3">
  <name>Users in MidPoint</name>
  <description>Users listed in MidPoint.</description>
  <reportEngine>jasper</reportEngine>
  <jasper>
    <parent>true</parent>
    <template>PD94bWwgdmVyc2lvbj0iMS4wIiBlbmNvZGluc29iVVRGLTgiPz4KP6phc3BlclJlc ..... </template>
    <templateStyle>PD94bWwgdmVyc2lvbj0iMS4wIj8+DQo8IURPQ1RZUEUgamFzcGVyVGVtcGxh ..... </templateStyle>
    <export>pdf</export>
    <virtualizer>JRSwapFileVirtualizer</virtualizer>
    <virtualizerKickOn>300</virtualizerKickOn>
    <maxPages>10000</maxPages>
    <timeout>300000</timeout>
  </jasper>
</report>
```

| Converting of Jasper to Native report - query

```
<report oid="00000000-0000-0000-0000-000000000110"  
    xmlns="http://midpoint.evolveum.com/xml/ns/public/common/common-3">  
    <name>Users in MidPoint</name>  
    <description>Users listed in MidPoint.</description>  
    <objectCollection>  
  
    </objectCollection>  
</report>
```


Converting of Jasper to Native report - query

```
<queryString language="mql">
```

```
  <![CDATA[<filter>
```

```
    <and>
```

```
      <equal>
```

```
        <path>activation/administrativeStatus</path>
```

```
        <expression>
```

```
          <queryInterpretationOfNoValue>filterAll</queryInterpretationOfNoValue>
```

```
          <path>$activation</path>
```

```
        </expression>
```

```
      </equal>
```

```
      <ref>
```

```
        <path>assignment/targetRef</path>
```

```
        <expression>
```

```
          <queryInterpretationOfNoValue>filterAll</queryInterpretationOfNoValue>
```

```
          <script>
```

```
            <code>
```

```
              import com.evolveum.midpoint.xml.ns._public.common.common_3.*;
```

```
              if (!role) {
```

```
                return null;
```

```
              }
```

```
              ObjectReferenceType ort = new ObjectReferenceType();
```

```
              ort.setOid(role);
```

```
              ort.setType(RoleType.COMPLEX_TYPE);
```

```
              return ort;
```

```
            </code>
```

```
          </script>
```

```
        </expression>
```

```
      </ref>
```

```
    </and>
```

```
  </filter>]]>
```

```
</queryString>
```

```
<filter xmlns="http://midpoint.evolveum.com/xml/ns/public/common/common-3"
```

```
  xmlns:q="http://prism.evolveum.com/xml/ns/public/query-3">
```

```
  <q:and>
```

```
    <q:equal>
```

```
      <q:path>activation/administrativeStatus</q:path>
```

```
      <expression>
```

```
        <queryInterpretationOfNoValue>filterAll</queryInterpretationOfNoValue>
```

```
        <path>$activation</path>
```

```
      </expression>
```

```
    </q:equal>
```

```
    <q:ref>
```

```
      <q:path>assignment/targetRef</q:path>
```

```
      <expression>
```

```
        <queryInterpretationOfNoValue>filterAll</queryInterpretationOfNoValue>
```

```
        <path>$role</path>
```

```
      </expression>
```

```
    </q:ref>
```

```
  </q:and>
```

```
</filter>
```

Converting of Jasper to Native report - parameters

- Find elements *jasperReport/parameter*

```
<parameter name="activation" class="com.evolveum.midpoint.xml.ns._public.common.common_3.ActivationStatusType"/>  
<parameter name="role" class="java.lang.String"/>
```

```
<parameter>  
  <name>role</name>  
  <type>ObjectReferenceType</type>  
  <targetType>RoleType</targetType>  
  <display>
```

```
    <label>  
      <t:orig>role</t:orig>  
      <t:norm>role</t:norm>  
      <t:translation>  
        <t:key>ObjectTypeGuiDescriptor.role</t:key>  
      </t:translation>  
    </label>  
  </display>
```

```
</parameter>
```

```
<parameter>  
  <name>activation</name>  
  <type>ActivationStatusType</type>  
  <display>
```

```
    <label>  
      <t:orig>activation</t:orig>  
      <t:norm>activation</t:norm>  
      <t:translation>  
        <t:key>ActivationType.administrativeStatus</t:key>  
      </t:translation>  
    </label>
```

```
</display>  
</parameter>
```

Converting of Jasper to Native report - columns

- Find element *jasperReport/detail/band/frame* and in it the elements *textField* and *componentElement*
 - *textField* :

```
<textField isStretchWithOverflow="true" isBlankWhenNull="true">
  <reportElement x="0" y="0" width="280" height="20" uuid="3c668eee-cd3e-4697-afe3-edb7894525cc"/>
  <textFieldExpression><![CDATA[$F{name}]]></textFieldExpression>
</textField>
```

```
<column>
  <name>nameColumn</name>
  <path>name</path>
</column>
```

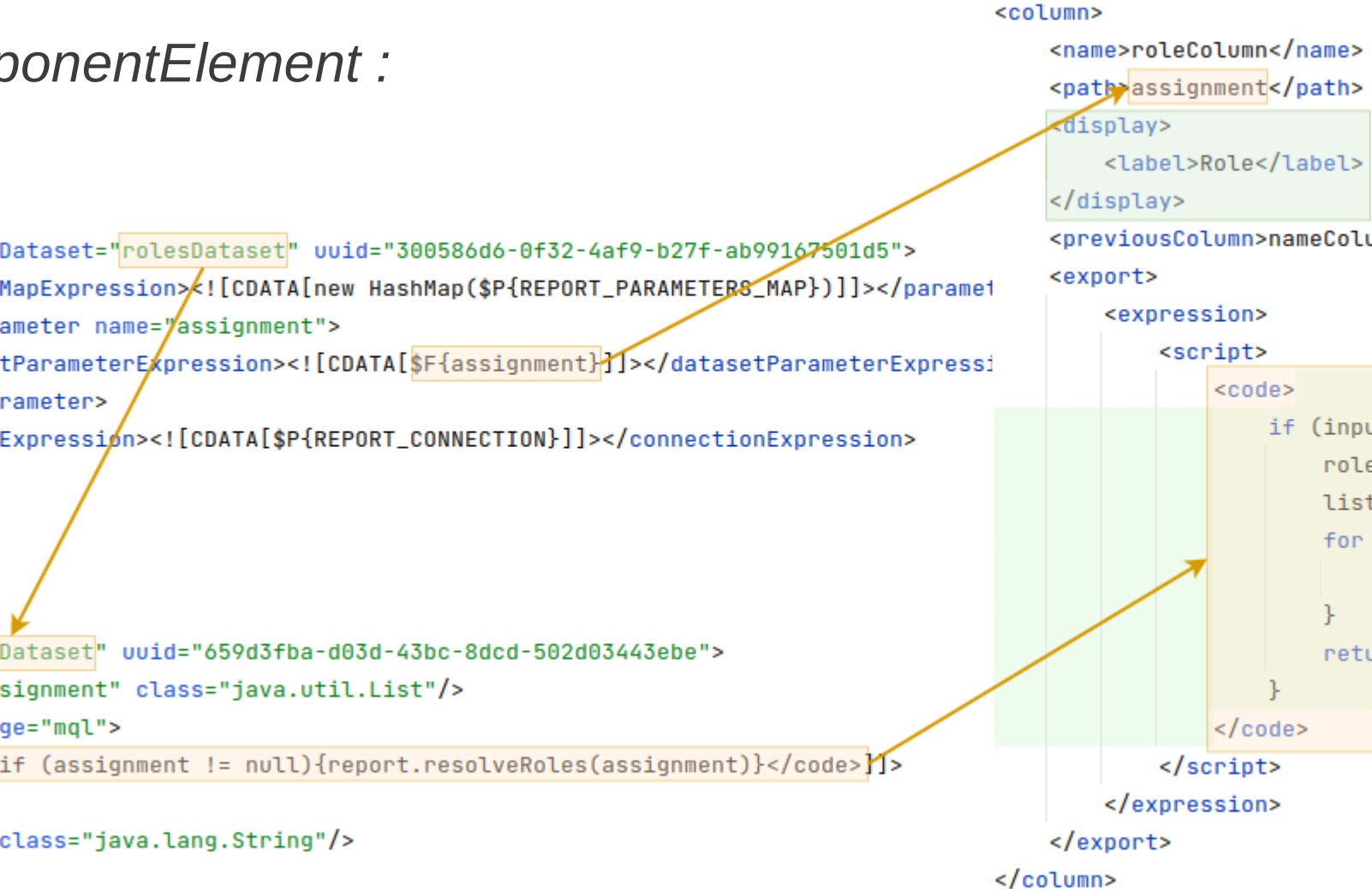
Converting of Jasper to Native report - columns

- Find element *jasperReport/detail/band/frame* and in it the elements *textField* and *componentElement*
- *componentElement* :

```
<componentElement>
...
<jr:list>
  <datasetRun subDataset="rolesDataset" uuid="300586d6-0f32-4af9-b27f-ab99167501d5">
    <parametersMapExpression><![CDATA[new HashMap(${REPORT_PARAMETERS_MAP})]></parametersMapExpression>
    <datasetParameter name="assignment">
      <datasetParameterExpression><![CDATA[${F{assignment}}]></datasetParameterExpression>
    </datasetParameter>
    <connectionExpression><![CDATA[${REPORT_CONNECTION}]></connectionExpression>
  </datasetRun>
  ...
</jr:list>
</componentElement>
```

```
<subDataset name="rolesDataset" uuid="659d3fba-d03d-43bc-8dcd-502d03443ebe">
  <parameter name="assignment" class="java.util.List"/>
  <queryString language="mql">
    <![CDATA[<code>if (assignment != null){report.resolveRoles(assignment)}</code>]]>
  </queryString>
  <field name="name" class="java.lang.String"/>
</subDataset>
```

```
<column>
  <name>roleColumn</name>
  <path>assignment</path>
  <display>
    <label>Role</label>
  </display>
  <previousColumn>nameColumn</previousColumn>
  <export>
    <expression>
      <script>
        <code>
          if (input != null){
            roles = report.resolveRoles(input);
            list = new ArrayList();
            for (role in roles) {
              list.add(role.getName());
            }
            return list;
          }
        </code>
      </script>
    </expression>
  </export>
</column>
```



| Main Takeaways

- Using only Native reports in MidPoint 4.4
- Now we can report more complex use cases
- Try them, and let us know which functionality is missing
- Everything is in the docs!
 - <https://docs.evolveum.com/midpoint/reference/misc/reports/configuration/>

Thank you for your time!

See more details at <https://docs.evolveum.com>

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